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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,227	12/29/2000	Joseph E. Johnson	97078CIPDIV1	5132

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02/24/2005

Cabot Corporation
Law Department
157 Concord Road
Billerica, MA 01821

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,227

Applicant(s)

JOHNSON ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57-67, 70-72, 80, 82 and 84-86 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 86 is/are allowed.
- 6) ☒ Claim(s) 57, 59-62, 65-67, 70-72, 80, 82, 84 and 85 is/are rejected.
- 7) ☒ Claim(s) 58, 63 and 64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 12/6/04.

In light of the new grounds of rejection as set forth below, the following action is non-final.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 57, 59-62, 65-67, 80, 82, and 84-85 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8-9, and 11-14 of U.S. Patent No. 6,478,863 (Johnson et al.). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Johnson et al. disclose modified pigment comprising pigment having attached at least one aromatic group X wherein X is substituted with at least one group of the formula $-[\text{NIon}]\text{R}$ wherein R is hydrogen, substituted or unsubstituted alkyl group, or substituted or unsubstituted aromatic group, p is 1-500, and [NIon] is polymer of alcohol. It is disclosed that X is further substituted with functional group such as carboxylic group or sulfonate group and that the pigment has attached a further chemical group. There is also disclosed ink comprising the above pigment and liquid vehicle wherein the ink is an ink jet ink.

The difference between Johnson et al. and the present claimed invention is (a) Johnson et al. disclose polymer of alcohol is attached to pigment while the present claims disclose use of polyvinyl alcohol and (b) there is no disclosure in Johnson et al. that the ink comprises additional polymer as required in present claim 80.

With respect to difference (a), it is noted that Johnson et al. disclose modified pigment comprising pigment having attached at least one aromatic group X wherein X is substituted with at least one group of the formula $-[\text{NIon}]\text{R}$ wherein [NIon] is polymer of alcohol while the present claims require modified pigment comprising pigment having attached at least one aromatic group X wherein X is substituted with at least one group of the formula $-[\text{polymer}]\text{R}$ wherein [polymer] is polyvinyl alcohol.

However, one of ordinary skill in the art would have recognized that the broad disclosure of “polymer of alcohol” in Johnson et al. encompasses polymer having alcohol groups which clearly encompasses the specific polyvinyl alcohol presently claimed. Further, it would have been within the skill level of one of ordinary skill in the art to recognize that the choice of polymer that is attached to the pigment would effect the properties of the pigment including water-solubility, stability, molecular weight, etc. which would depend on the desired end use of the modified pigment and thus, one of skill in the art would choose specific “polymer of alcohol” based on the desired properties of the modified pigment. Thus, it would have been within the bounds of routine experimentation, as well as within the skill level of, one of ordinary skill in the art to choose polyvinyl alcohol as the specific “polymer of alcohol” depending on the desired properties of the modified pigment and its desired end use.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to choose polyvinyl alcohol as the “polymer of alcohol” in Johnson et al. in order to produce pigment with desired properties, and thereby arrive at the claimed invention from Johnson et al.

With respect to difference (b), Johnson et al. is silent with respect to the use of additional polymer in the ink composition as is required in present claim 80.

Applicants’ attention is drawn to MPEP 804 where it is disclosed that “the specification can always be used as a dictionary to learn the meaning of a term in a patent claim.” *In re Boylan*, 392 F.2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an

invention claimed in the patent. (underlining added by examiner for emphasis) *In re Vogel*, 422 F.2d 438,164 USPQ 619,622 (CCPA 1970).

Consistent with the above underlined portion of the MPEP citation, attention is drawn to col.15, lines 9-16 of Johnson et al. which discloses that the ink of Johnson et al. does in fact utilize an additional polymer such as polyester, styrene-acrylic acid copolymer, styrene-acrylate copolymer, etc. The motivation for using such polymer is as a binder.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use additional polymer in the ink of Johnson et al. in order to improve the adhesion of the ink to substrate, and thus, one of ordinary skill in the art would have arrived at the present invention from Johnson et al.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 65-67, 80, 82, and 84-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U.S. 5,690,723) in view of Cooke et al. (U.S. 6,110,994).

Sano et al. disclose ink jet ink comprising aqueous vehicle, polymer including copolymer obtained from styrene and acrylate, and pigment that is surface treated with resin (col.1, lines 7-9, col.2, lines 25-37, col.3, lines 55-58 and 60-63).

The difference between Sano et al. and the present claimed invention is the requirement in the claims of specific type of pigment.

Cooke et al. disclose modified pigment comprising pigment having attached group of the formula $\text{Ar-CO}_2\text{-R}$ where Ar is aromatic group and R is polymer such as polyamide or polyester. Further, it is disclosed that the polymer can include aromatic or alkyl group. Cooke et al. further disclose that such pigments are suitable for use in aqueous coatings (col.1, lines 60-67, col.4, lines 4-9 and 19-22, col.10, lines 57-64, and col.13, lines 7-10). The motivation for using such pigments is that they possess improved dispersability and can improve colorfastness and abrasion resistance of the coatings (col.21, lines 54-57). It is noted that colorfastness and abrasion resistance are properties particularly relevant to ink compositions where it is important that the ink does not fade with time or is able to be smudged or removed from paper on which it is printed.

In light of the motivation for using specific pigment disclosed by Cooke et al., it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Sano et al. in order to produce ink with good colorfastness and abrasion resistance, and thereby arrive at the claimed invention.

6. Claims 70-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. in view of Cooke et al. as applied to claims 65-67, 80, 82, and 84-85 above, and further in view of Johnson et al. (U.S. 5,837,045).

The difference between Sano et al. in view of Cooke et al. and the present claimed invention is the requirement in the claims of modified pigment comprising second chemical group.

Johnson et al., which is drawn to modified pigment, disclose pigment having attached chemical group such as carboxyphenyl or sulfophenyl in order to produce pigment that is more easily dispersible and has greater stability than untreated pigment (col.3, lines 37-43, col.7, lines 30-38, and col.11, lines 17-26).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to attach chemical group such as carboxyphenyl or sulfophenyl to modified pigment disclosed by Sano et al. in combination with Cooke et al. in order to produce pigment with improved dispersability and stability, and thereby arrive at the claimed invention.

7. Claims 65-67, 80, 82, and 84-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. (U.S. 5,690,723) in view of Hall et al. (U.S. 5,552,458).

Sano et al. disclose ink jet ink comprising aqueous vehicle, polymer including copolymer obtained from styrene and acrylate, and pigment that is surface treated with resin (col.1, lines 7-9, col.2, lines 25-37, col.3, lines 55-58 and 60-63).

The difference between Sano et al. and the present claimed invention is the requirement in the claims of specific type of pigment.

Hall et al. disclose modified pigment comprising pigment having attached group of the formula
$$\begin{array}{c} R^1 \\ | \\ R^2-Si-AX \\ | \\ R^3 \end{array}$$
 where R^1 and R^3 are each C_1-C_{10} alkyl group, A is divalent radical, and X is attached to polymeric backbone. The polymer includes polyurethane and polyester. Hall et al. further disclose that the pigment is suitable for use in inks (col.1, lines 17-18, col.3, lines 24-32 and 46-47 and col.4, lines 45-50). The motivation for using such pigment is to produce dramatic visual effects not found in other pigments (col.1, lines 29-31).

Art Unit: 1714

In light of the motivation for using specific pigment disclosed by Hall et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Sano et al. in order to produce ink with dramatic visual effect, and thereby arrive at the claimed invention.

8. Claims 70-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. in view of Hall et al. as applied to claims 65-67, 80, 82, and 84-85 above, and further in view of Johnson et al. (U.S. 5,837,045).

The difference between Sano et al. in view of Hall et al. and the present claimed invention is the requirement in the claims of modified pigment comprising second chemical group.

Johnson et al., which is drawn to modified pigment, disclose pigment having attached chemical group such as carboxyphenyl or sulfophenyl in order to produce pigment that is more easily dispersible and has greater stability than untreated pigment (col.3, lines 37-43, col.7, lines 30-38, and col.11, lines 17-26).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to attach chemical group such as carboxyphenyl or sulfophenyl to modified pigment disclosed by Sano et al. in combination with Hall et al. in order to produce pigment with improved dispersability and stability, and thereby arrive at the claimed invention.

NOTE: If claims 65 and 80 were each amended to (i) delete polyester and polyamide from the list of “polymer” and (ii) insert that X and X’ can be the same or different “and are directly attached to the pigment”, the above rejections under 35 USC 103 would be overcome.

Allowable Subject Matter

9. Claim 86 is allowable over the “closest” prior art Cooke et al. (U.S. 6,110,994), Hall et al. (U.S. 5,552,458), and Whitehouse et al. (U.S. 6,337,358) for the following reasons.

Cooke et al. disclose modified pigment comprising pigment having attached group of the formula $\text{Ar-CO}_2\text{-R}$ where A is aromatic group corresponding to presently claimed X and R is polymer such as polyamide or polyester. However, there is no disclosure or suggestion in Cooke et al. that the polymer comprises at least one -X' group that is the same as X and thus, there is also no disclosure that the X’ group is attached to the pigment as required in present claim 86.

Hall et al. disclose modified pigment having attached group of the formula $\text{R}^2\text{-}\overset{\text{R}^1}{\underset{\text{R}^3}{\text{Si}}}\text{-A-X}$ wherein X is then reacted with reactive functionality on a polymer backbone so that the modified pigment comprises pigment with attached group that is substituted with polymer. However, there is no disclosure or suggestion in Hall et al. that the polymer comprises at least one -X' group that is the same as X and thus, there is also no disclosure that the X’ group is attached to the pigment as required in present claim 86.

Whitehouse et al. disclose modified pigment comprising pigment having attached group of the formula $\text{A-R}^1\text{-}\overset{\text{R}^2}{\underset{\text{R}^3}{\text{C}}}\text{-X-SFR}$ where A is an aromatic or alkyl group corresponding to X as presently claimed, X is polymer, and SFR is O-Ar^2 where Ar is aromatic group. While the polymer of Whitehouse et al. includes those obtained from monomer such as alkyl

Art Unit: 1714

(meth)acrylate which corresponds to polymer having X' group as presently claimed, there is no disclosure or suggestion in Whitehouse et al. that X' is attached to the pigment as required in present claim 86.

10. Claims 58 and 63-64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 58 and 64-64 would be allowable if rewritten in independent form as described above for the following reasons.

Cooke et al. (U.S. 6,110,994) disclose modified pigment comprising pigment having attached group of the formula $\text{Ar-CO}_2\text{-R}$ where A is aromatic group corresponding to presently claimed X and R is polymer such as polyamide or polyester. However, there is no disclosure or suggestion that the polymer is polycarbonate, polyester, polyimide, polyurethane, or polyvinyl alcohol as required in present claims 58 and 63-64. Further, there is no disclosure or suggestion in Cooke et al. that the polymer comprises at least one -X' group which is attached to the pigment as required in present claim 58.

Hall et al. (U.S. 5,552,458) disclose modified pigment having attached group of the formula $\text{R}^2\text{-}\overset{\text{R}^1}{\underset{\text{R}^3}{\text{Si}}}\text{-A-X}$ wherein R^1 and R^3 are each $\text{C}_1\text{-C}_{10}$ alkyl group, A is divalent radical, and X is attached to polymeric backbone and wherein X is then reacted with reactive functionality on a polymer backbone so that the modified pigment comprises pigment with attached group that is substituted with polymer. The polymer includes polyurethane and polyester. However, the above attached group is attached to the pigment through -Si-O-M bonds where M represents surface

Art Unit: 1714

metal on the pigment material such as aluminum, gold, copper, silver, etc. There is no disclosure or suggestion that the pigment has directly attached aromatic or alkyl group which is substituted with polymer as required in present claims 58 and 63-64. Rather, the attachment in Hall et al. is through -Si-O-M bond not aromatic or alkyl group. Further, there is no disclosure or suggestion in Hall et al. that the polymer comprises at least one -X' group which is attached to the pigment as required in present claim 58.

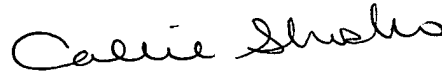
Whitehouse et al. (U.S. 6,337,358) disclose modified pigment comprising pigment having attached group of the formula $A-R^1-\overset{\overset{R^2}{|}}{\underset{\underset{R^3}{|}}{C}}-X-SFR$ where A is an aromatic or alkyl group corresponding to X as presently claimed, X is polymer, and SFR is O-Ar² where Ar is aromatic group. However, the polymer of Whitehouse et al. is obtained from diene or vinyl polymer which is in direct contrast to the present claims which require that the polymer is polycarbonate, polyester, polyimide, polyurethane, or polyvinyl alcohol. Further, while the polymer of Whitehouse et al. includes those obtained from monomer such as alkyl (meth)acrylate which corresponds to polymer having X' group as presently claimed, there is no disclosure or suggestion in Whitehouse et al. that X' is attached to the pigment as required in present claim 58.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
2/21/05